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EXAMINER	
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ART UNIT	PAPER NUMBER
2667	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/872,412	BANKS ET AL.	
	Examiner	Art Unit	
	Christopher P Grey	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2001*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendments

1. Responsive to the amendments received on July 19, 2005, the claims 15-19, 29 and 30 are cancelled.

2. **The text of those sections of Title 35, U.S. Code no included in this action can be found in a prior Office action.**

3. Claims 20-22, 31, 35, 39 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Wyatt (2005/0030948)

Claim 20 Wyatt discloses transmitting frames of data from a first switch to a second switch (see Fig 1A and page 1 paragraph 003) via a plurality of links (elements 132 c-e).

Wyatt discloses a group/trunk (element 134 in fig 1a) of links (page 1 paragraph 0005).

Wyatt discloses a plurality of first and second (egress and ingress) ports (page 1 paragraph 0003). The egress ports are coupled to a first switch and the ingress ports being coupled to a second switch (both switches contain egress and ingress)

Wyatt discloses a trunk port selector logic that selects a link for data to be forwarded (routed) as disclosed on page 1 paragraph 0008.

Claim 21 Wyatt discloses the switch forwarding data packets to one of the egress port queues (page 1 paragraph 0023) before data packets are forwarded (routed) on the corresponding link (page 2 paragraph 0024).

Wyatt discloses data packets being evenly distributed among the physical links (page 5 paragraph 0061).

Claim 22 Wyatt discloses storing ingress data in the egress data queue (page 2 paragraph 0031).

Wyatt also discloses the data packets being stored in the order that they are received (page 2 paragraph 0025).

Claim 31 Wyatt discloses transmitting frames of data from a first switch to a second switch (see Fig 1A and page 1 paragraph 003) in order (page 1 paragraph 007 and abstract and page 2 paragraph 0024-0025).

Wyatt discloses the switch forwarding data packets to one of the egress port queues (page 1 paragraph 0023).

Wyatt discloses data packets being evenly distributed among the physical links (page 5 paragraph 0061).

Wyatt discloses the data flow being transmitted to the destination in the order that they are received (page 2 paragraph 0025).

Claim 35 Wyatt discloses connecting a first switch to a second switch (page 1 paragraph 0003) via a number of ports connected by a number of links (page 1 paragraph 0008).

Wyatt discloses the switch forwarding data packets to one of the egress port queues (page 1 paragraph 0023).

Wyatt discloses data packets being evenly distributed among the physical links (page 5 paragraph 0061).

Wyatt discloses the data flow being transmitted by an egress port (page 2 paragraph 0027) to the destination in the order that they are received (page 2 paragraph 0025).

Claim 39 Wyatt discloses connecting a first switch to a second switch (page 1 paragraph 0003) via a number of ports connected by a number of links (page 1 paragraph 0008).

Wyatt discloses the switch forwarding data packets to one of the egress port queues (page 1 paragraph 0023).

Wyatt discloses a port selector dedicated for transmitting data packets in an evenly distributed manner among the physical links (page 5 paragraph 0061).

Wyatt discloses the data flow being transmitted by an egress port (page 2 paragraph 0027) to the destination in the order that they are received (page 2 paragraph 0025).

Claim 42 Wyatt discloses a computer (page 1 paragraph 0002).

Wyatt discloses buffer memory (page 2 paragraph 0032).

Wyatt discloses a switch being connected to a computer (page 1 paragraph 0002).

Wyatt discloses a destination device having buffer memory for storage and a number of ingress ports (page 2 paragraph 0032).

Wyatt discloses connecting a first switch to a second switch (page 1 paragraph 0003) via a number of ports connected by a number of links (page 1 paragraph 0008).

Wyatt discloses the switch forwarding data packets to one of the egress port queues (page 1 paragraph 0023).

Wyatt discloses a port selector dedicated for transmitting data packets in an evenly distributed manner among the physical links (page 5 paragraph 0061).

Wyatt discloses the data flow being transmitted by an egress port (page 2 paragraph 0027) to the destination in the order that they are received (page 2 paragraph 0025).

4. Claims 1, 2, 10-13, 15-19 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller et al. (US 6016310) in view of Wyatt (2005/0030948) in further view of O'Keeffe et al. (US 6785286)

Claim 1, 29 Muller et al. (Muller 'hereinafter') discloses a communication network (element 130 in Fig 1) with 2 devices (switches- element 211 in Fig 2) connected via a plurality of ports (elements 106-108 and 111-113 in Fig 1) by a plurality of links (elements 115-117 in Fig 1).

Muller also discloses a forwarding database and control logic coupled to the trunked ports (Col 1 line 63- Col 2 line 12).

Muller discloses a trunk group (element 140 in Fig 1) to which a number of selected links are a part of. However Muller does not specifically disclose adding new ports to the trunking grouping in response to determining if they qualify and selecting a pair of trunking ports as master ports.

Wyatt discloses transmitting frames of data from a first switch to a second switch (see Fig 1A and page 1 paragraph 003). Wyatt also discloses a database for storing and learning ports to be introduced into a trunk group (page 3 paragraph 0046).

Wyatt discloses updating the database when a determination (port qualifies) has been made (page 3 paragraph 0046).

Wyatt does not disclose selecting a pair of trunking ports as master ports. However O'keeffe et al. ('O'Keeffe' hereinafter) discloses once a group of trunked ports has been created, selecting a port to be a master port (Col 4 lines 22-45).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the forwarding database as disclosed by Muller with the updating of the forwarding database as disclosed by Wyatt in order to add a logical port to the trunking group (page 3 paragraph 0046). Furthermore it would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Muller and Wyatt with the function of selecting a master port as disclosed by O'Keeffe. The motivation for this modification is to allow a master port to decide which physical port of the trunk should be used for forwarding the packet (Col 1 lines 37-50).

Claim 2 Muller discloses ports (elements 106-108 and 111-113 in fig 1) coupled to each other creating an inter switch link (elements 115-117 in fig 1 and Col 1 lines 13-25). Muller does not specifically disclose the ports within a fibre channel environment, however it would have been obvious to one of the ordinary skill in the art at the time of the invention to realize that an Ethernet environment and a fibre channel environment share in common the concept of trunking together a number of ports/links and also both are high speed data environments, therefore equivocating any port within Muller's Ethernet environment, to an e_port.

Claim 10 Muller does not disclose determining that a new port does not belong to an existing trunked group and designating the new port as a trunking master port.

Wyatt discloses determining if a port is to be modified or learned by the database and updating the database where necessary (page 3 paragraph 0046).

Wyatt does not disclose designating the new port as a trunking master port. However O'keeffe discloses once a group of trunked ports has been created, selecting a port to be a master port (Col 4 lines 22-45)

It would have been obvious to one of the ordinary skill in the art at the time of the invention to make the modifications to Muller's invention with the teachings of Wyatt and O'keeffe as is disclosed in the rejection of claim 1.

Claim 11, 17 Muller discloses each input port receiving a forwarding decision indicating the outbound ports upon which the corresponding packet should be transmitted. Also prioritization information (list) may be included in the forwarding decision to facilitate packet traffic though the switch (Col 5 lines 33-49).

That forwarding information is transmitted via a link for that period of time from an output port of a first switch to an input port of a second switch.

Muller does not specifically disclose receiving at the second switch with in order delivery.

Wyatt discloses the data flow being transmitted to the destination in the order that they are received (page 2 paragraph 0025).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the transmission of packets as disclosed by Muller with in order delivery as disclosed by Wyatt in order to avoid mis-ordered data (page 1 paragraph 0007).

Claim 12 Muller discloses load balancing, which involves the spreading of packets over different links of a trunk group (Col 6 lines 7-14). Muller does not disclose a master port comprising a transmit port for routing the frames.

O'Keeffe discloses a master port for forwarding packets (Col 4 lines 23-45). The motivation would have been the same as that for claim 1.

Claim 13 The combined teachings of Muller and O'keeffe do not disclose the other of the trunking master ports comprising a receive port queuing frames received over the trunked group.

Wyatt discloses an egress port queue to which a received data packet is stored before being forwarded (page 2 paragraph 0024).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the teachings of Muller, Wyatt and O'keeffe as disclosed by the rejection of this claim in order to limit traffic congestion and enable temporary storage via queuing.

Claim 15 Muller et al. (Muller 'hereinafter') discloses a communication network (element 130 in Fig 1) with 2 devices (switches- element 211 in Fig 2) connected via a plurality of ports (elements 106-108 and 111-113 in Fig 1) by a plurality of links (elements 115-117 in Fig 1).

Muller discloses a control logic and forwarding database coupled to the trunked ports (Col 1 lines 63- Col 2 lines 12). Furthermore the forwarding database coupled to any port controls the frames being routed over the trunked group.

Muller discloses a trunk group (element 140 in Fig 1) to which a number of selected links are a part of, but does not specifically disclose adding new ports to the trunking group in response to determining if they qualify. Muller also does not disclose queuing the traffic load.

Wyatt discloses transmitting frames of data from a first switch to a second switch (see Fig 1A and page 1 paragraph 003). Wyatt also discloses a database for storing and learning ports to be introduced into a trunk group (page 3 paragraph 0046).

Wyatt discloses updating the database when a determination (port qualifies) has been made (page 3 paragraph 0046).

Wyatt discloses an egress port queue to which a received data packet is stored before being forwarded (page 2 paragraph 0024).

Wyatt does not disclose selecting a pair of trunking ports as master ports. However O'keeffe et al. ('O'Keeffe' hereinafter) discloses once a group of trunked ports has been created, selecting a port to be a master port (Col 4 lines 22-45).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the forwarding database as disclosed by Muller with the updating of the forwarding database as disclosed by Wyatt in order to add a logical port to the trunking group (page 3 paragraph 0046). Furthermore it would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Muller and Wyatt with the function of selecting a master port as disclosed by O'Keeffe. The motivation for this modification is to allow a master port to decide

which physical port of the trunk should be used for forwarding the packet (Col 1 lines 37-50).

Claim 16 Muller does not disclose queuing the traffic load received through a queue associated with the master receive port in an order received.

Wyatt discloses an egress port queue to which a received data packet is stored before being forwarded (page 2 paragraph 0024).

Wyatt discloses the data flow being transmitted to the destination in the order that they are received (page 2 paragraph 0025). The rejection of claim 15 discloses a master port.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the teachings of Muller, Wyatt and O'keeffe in order to prevent out-of order delivery and limit congestion.

Claim 18 Muller discloses the switches being apart of a fabric in a communication network (Col 5 lines 22-32).

Claim 19 Muller discloses packets (frames) entering or leaving a network switch (disclosed in Col 4 lines 41-54).

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller et al. (US 6016310) in view Wyatt (US 20050030948) in view of O'keeffe et al. (US 6785286) in further view of Kadambi et al. (US 6104696)

Claim 3 Muller discloses a trunk learning and filtering process, whereby information from a register (link parameters) is used to select the trunk and port. These registers contain information including the port number, trunk number field (first identifier) and trunk size field. This information is sent to a learning and filtering block where selection information is gathered in a forwarding port mask and ultimately sent back (exchanged) to the input port that requested the forwarding decision (Col 7 lines 59- Col 8 lines 42), indicating a successful exchange. Muller does not disclose determining whether a second identifier exists, the second identifier having a higher value than that of the first.

Kadambi et al. (Kadambi 'hereinafter') discloses a system and method of sending packets between ports on trunked network switches, where a first switch has a plurality of ports coupled to a plurality of ports on a second switch. The packet is received on the first switch and a lookup (request) is performed using a look up table (link parameters). A trunk connection between the first and second switch is identified (first identifier), and then a rules tag bit is identified (second identifier), as disclosed in Col 2 line 46- Col 3 line 32.

Therefore it would have been obvious for one skilled in the art at the time of the invention to modify the combined teachings of Muller, Wyatt and O'keeffe which, with an aspect of the invention disclosed by Kadambi which discloses selecting a new port

based on searching and using identifiers. The motivation for these modifications is to increase the processing speed and prevent delay packet forwarding (disclosed in Col 2 lines 18-43).

Claim 4 The combined teachings of Muller, Wyatt ad O'keeffe disclose each subsystem supporting gigabit Ethernet ports, fast Ethernet ports and Ethernet ports (Muller: Col 3 line 65- Col 4 line 20), which World Wide Name (64 bit identifier) is a subdivision of. The combined teachings of Muller, Wyatt ad O'keeffe also disclose a MAC address (Muller: Col 1 lines 41-54), where most network technologies use a WWN identifier such as a MAC address.

The motivation is the same as that for claim 3.

6. Claims 5-7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller et al. (US 6016310) in view of Wyatt (2005/0030948) in view of O'keeffe et al. (US 6785286) in further view of Bertin et al. (US 6400681)

Claim 5 The combined teachings of Muller and Wyatt disclose selecting and learning a trunk and ports but does not disclose determining a one way skew value for the links associated with the trunked group and determining whether the new port can be added to the trunked group based on the one way skew value determined.

Bertin et al. (Bertin 'hereinafter') discloses a method involving packet switching between a plurality of nodes (switches) interconnected with transmission links. Bertin discloses finding a path for a connection request. Bertin discloses a topology database being constantly updated, this database containing information about link properties such as the propagation delay (Col 9 lines 32-60). This propagation delay is maintained for each link (skew values). Bertin also discloses a quality of service requirement where the end to end delay transit delay and the end to end delay variation (skew values) are parameters (Col 12 lines 18-32). The topological updates are needed for path selection that may involve the activation of new links (Col 8 lines 29-44).

Therefore it would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Muller and Wyatt, with the aspect of the invention disclosed by Bertin, who discloses finding a path/route through maintaining a database with information (propagation delay) about links. The motivation for the mentioned modifications is to reduce end to end delay and increase data throughput (disclosed in Col 1 lines 44-59).

Claim 6 Muller discloses selecting and learning a trunk and ports but does not disclose, determining whether a link associated with the new port communicates frames at a speed substantially similar to other links in the trunked group; and determining that the one way skew value is within a predetermined range.

Bertin discloses a topology database being constantly updated, this database containing information about link properties such as the transmission medium and speed (Col 9 lines 32-60). The transmission speed is maintained for each link. The topological updates are needed for path selection that may involve the activation of new links (Col 8 lines 29-44). Bertin also discloses a quality of service requirement where the end to end delay transit delay and the end to end delay variation (skew values) are parameters (Col 12 lines 18-32).

The motivation is the same as that for claim 5

Claim 7 Muller does not disclose measuring a difference in propagation delay between the links associated with the trunked group.

Bertin discloses a topology database being constantly updated, this database containing information about link properties such as the propagation delay (Col 9 lines 32-60). The propagation delay is maintained for each link.

The motivation is the same as that for claim 5

Claim 14 The combined teachings of Muller and Wyatt discloses routing packets over a trunk and adding a port to a trunk group but do not disclose doing so prior to performing link parameter initialization.

Bertin discloses routing data packet over a trunk and in addition (in no particular order) updating information and maintaining a network topology including link utilization (Col 7 lines 24-40)

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the teachings of Muller and Wyatt with updating of the network topology as disclosed by Bertin. The motivation for this combination is to store updated data pertaining to the links in an Ethernet environment.

7. Claims 23-27, 32-34, 36-38, 40,41, 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wyatt (2005/0030948) in view of Bertin et al. (US 6400681)

Claim 23 Wyatt discloses in order delivery of packets. However Wyatt does not disclose a timer binding a particular list associated with the transmit port to a particular link in the group for a period of time to ensure in order delivery of frames transmitted across the group.

Bertin discloses a topology database being constantly updated, this database containing information (list) about link properties such as the propagation delay (Col 9 lines 32-60). The propagation delay is maintained for each link. One skilled in that art can appreciate a means (timer) for maintaining the propagation delay.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the teachings of Wyatt with the maintenance of time with respect to Bertin's invention (disclosed in Col 1 lines 44-59). The motivation for this combination is to ensure that there is not a large delay in transmission.

Claim 24 Wyatt does not disclose a programmable time out constant register. However Bertin discloses a time to live parameter (disclosed in Col 17 line 29-50). It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the teachings of Wyatt with a time to live parameter, which acts as a time for expiration, and is commonly associated with a timer and CPU (register).

Claim 25 Wyatt discloses a number of ports within an Ethernet environment (page 1 paragraph 0008-0009). Wyatt does not specifically disclose the ports within a fabric channel environment. However it would have been obvious to one of the ordinary skill in

the art at the time of the invention to realize that an Ethernet environment and a fibre channel environment share in common the concept of trunking together a number of ports/links and also both are high speed data environments, therefore equivocating any port within Wyatt's invention as an e_port.

Claim 26 Wyatt discloses a number of logical links (ISL's) connecting switches together (page 1 paragraphs 0003 and 0008).

Claim 27 Wyatt does not disclose a one way link timer. However Bertin discloses a propagation delay being maintained for each link. One skilled in that art can appreciate a means (timer) for maintaining the propagation delay, where the time for a destination port to receive a packet is used to calculate a propagation delay. The motivation is the same as that for claim 23.

Claim 32 Wyatt disclose selecting and learning a trunks and ports but does not disclose determining a skew values for the links and transmitting frames using the determined skew values to control the transmission of frames.

Bertin et al. (Bertin 'hereinafter') discloses a method involving packet switching between a plurality of nodes (switches) interconnected with transmission links. Bertin discloses a topology database being constantly updated, this database containing information about link properties such as the propagation delay (Col 9 lines 32-60). This propagation delay is maintained for each link (skew values).

Bertin also discloses a quality of service requirement where the end to end delay transit delay and the end to end delay variation (skew values) are parameters (Col 12 lines 18-32).

Therefore it would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the teachings of Wyatt, with the aspect of the invention disclosed by Bertin, who discloses maintaining a database with information (propagation delay) about links and maintaining a level of quality of service. The motivation for the mentioned modifications is to reduce end to end delay and increase data throughput (disclosed in Col 1 lines 44-59).

Claim 33 Wyatt does not disclose a one way skew value, however Bertin discloses a topology database being constantly updated, this database containing information about link properties such as the propagation delay and end to end delay variation (Col 9 lines 32-60). It would have been obvious to one of the ordinary skill in the art at the time of the invention to interpret end to end is equivalent to one way.

Claim 34, 38, 41, 45 Wyatt discloses first and second switches and a plurality of links within an Ethernet environment (page 1 paragraph 0003 and 0008). Wyatt does not specifically disclose the switches and links being fibre channel environment, however it would have been obvious to one of the ordinary skill in the art at the time of the invention to realize that an Ethernet environment and a fibre channel environment share in common the concept of trunking together a number of ports/links and also both are high speed data environments, therefore equivocating the function of any switch or link within Wyatt's Ethernet environment, to a fibre channel switch or link.

Claim 36, 40, 43 Wyatt does not disclose a cooperating logic to determine skew values between two links. Wyatt also does not disclose the transmitting logic using the skew values to control timing of the transmission of the frames.

Bertin discloses a topology database being constantly updated, this database containing information about link properties such as the propagation delay and end-to-end delay variation (Col 9 lines 32-60).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to use the propagation delay and end-to-end delay variation in order to adjust transmission and reduce end-to-end delay accordingly.

Claim 37, 44 Wyatt does not disclose one-way skew values. However Bertin discloses end to end delay variation values, which it would have been obvious to one skilled in the art at the time of the invention to deduce the end to end delay variation value as a one way skew value, or variation thereof.

8. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wyatt (US 2005/0030948) in view of O'keeffe (US 6785286)

Claim 15, 30 Wyatt discloses a plurality of first and second (egress and ingress) ports (page 1 paragraph 0003). The egress ports are coupled to a first switch and the ingress ports being coupled to a second switch (both switches contain egress and ingress)

Wyatt discloses the switch forwarding data packets to one of the egress port queues (page 1 paragraph 0023).

Wyatt discloses data packets being evenly distributed among the physical links (page 5 paragraph 0061).

Wyatt does not disclose designating one of the transmit ports as a master port. However O'keeffe et al. ('O'Keeffe' hereinafter) discloses once a group of trunked ports has been created, selecting a port to be a master port (Col 4 lines 22-45)

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the trunk port selector logic (page 1 paragraph 0008) as disclosed by Wyatt with the function of selecting a master port as disclosed by O'Keeffe. The motivation for this modification is to allow a master port to decide which physical port of the trunk should be used for forwarding the packet (Col 1 lines 37-50).

Claim 16 Wyatt discloses transmitting packets across a trunking group.

Wyatt discloses the switch forwarding data packets to one of the egress port queues (page 1 paragraph 0023).

Wyatt also discloses the data flow being transmitted to the destination in the order that they are received (page 2 paragraph 0025).

The rejection of claim 15 discloses a master port.

Claim 17 Wyatt discloses stored egress (transmit) data (list).

Wyatt discloses forwarding egress data to an egress port (transmit port), where each port has a corresponding link by which to transmit data (page 2 paragraphs 0032-0033)

Wyatt discloses the data flow being transmitted to the destination in the order that they are received (page 2 paragraph 0025).

9. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wyatt (2005/0030948) view of O'keeffe (US 6785286) in further view of Muller et al. (US 6016310)

Claim 18 The combined teachings of Wyatt and O'keeffe disclose interconnecting switches. However the combined teachings of Wyatt and O'keeffe do not specifically disclose a switch fabric.

Muller discloses the switches being apart of a fabric in a communication network (Col 5 lines 22-32).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Wyatt and O'keeffe with the switching fabric as disclosed by Muller in order to achieve point to point (device to device) pathways from one switch to another.

Claim 19 Wyatt discloses data packets (frames) being forwarded (page 2 paragraph 0025).

10. Claim 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wyatt (2005/0030948) view of Bertin et al. (US 6400681) in further view of Muller et al. (US 6016310)

Claim 28 The combined teachings of Wyatt and Bertin disclose interconnecting switches. However the combined teachings of Wyatt and Bertin do not specifically disclose a switch fabric.

Muller discloses the switches being apart of a fabric in a communication network (Col 5 lines 22-32).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Wyatt and Bertin with the switching fabric as disclosed by Muller in order to achieve point to point (device to device) pathways from one switch to another.

Response to Arguments

11. Applicant's arguments filed July 19, 2005 have been fully considered but they are not persuasive.

(a) The Applicant argued that the cited art does not disclose the Applicant's claimed "the transmit port routing frames received at the first switch across the group to the second switch".

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 20, wherein Wyatt discloses an egress port engine within the egress for forwarding incoming data to a destination (paragraph 0032 and 0033), where the egress port engine and ports can be seen within element 110 of fig 1B.

(b) The Applicant argued that the cited art does not disclose the Applicant's claimed, "Frames are received at the second ports in order as received at the first switch".

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 20, 35, 39 and 42 wherein Wyatt discloses that packets are transmitted from output ports in the same order that they are received (paragraph 0025 and see abstract). Furthermore, Wyatt discloses the output ports transmitting data along physical links in the same order that they were received, where the physical links are all of the same speed (paragraph 0061). With the links being of the same speed, that ensures in order delivery and in order reception at a destination

device. The distance from a first switch (element 100) to a destination (element 112 c) is the same distance through each link (elements 132 c-e) as can be seen in Fig 1A.

(c) The Applicant argued that the cited art does not disclose the Applicant's claimed "trunking master ports".

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 1, wherein O'keefe discloses selecting a master port (Col 4 lines 22-45). O'keefe also discloses the master port being a logical port as disclosed by the arguments of the applicant, where it would have been obvious to one of the ordinary skill in the art at the time of the invention that if a master port is a logical port, a logical port has the capability of functioning as a master port.

(d) The Applicant argued that the cited art does not disclose the Applicant's claimed "E_Ports".

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 2, 34, 38, 41 and 45, wherein the rejection of claim 2 explains the similarity b/w environments, and furthermore the response to arguments (b) discloses in order delivery in an Ethernet environment.

(e) The Applicant argued that the cited art does not disclose the Applicant's claimed "exchanging link parameters".

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 3, wherein Muller discloses information pertaining to a link within a switch is sent from a set of ports to a logical unit.

Furthermore, Kadambi discloses a first switch sending a request to a second switch, where the second switch provides information about the second switch pertaining to the request, where it would have been obvious to one of the ordinary skill in the art at the time of the invention that any form of request and response can be considered as exchanging link parameters.

(d) The Applicant argued that the cited art does not disclose the Applicant's claimed "WWN identifier".

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 4, wherein Muller discloses a 64-bit identifier with an Ethernet environment. It would have been obvious to one of the ordinary skill in the that Ethernet and the Fibre Channel environment have similar factors and thus the equivalent 64 bit identifier within a Fibre channel environment would be a WWN identifier.

(e) The Applicant argued that the cited art does not disclose the Applicant's claimed "a one way skew value".

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 5, 32, 36, 40, 43, 33, 37 and 44, wherein Bertin

discloses maintaining the propagation delay for each link. Skew values are the difference in time, thus can be interpreted as the propagation delay. The Applicant argues about comparing the propagation delay; however nowhere in claim 5 does it specify that a comparison is made.

The applicant also argues that the cited art does not teach determining skew values for the links and using those skew values to control timing of transmission.

The examiner maintains that the same limitation is already discussed in the rejection of claims 32, 36, 40 and 43, wherein Bertin discloses determining propagation delay values over a number of links. Furthermore, Bertin discloses a Quality of service being maintained, where that quality of service requirement allows a transmitting node to adjust transmission parameter in order to fulfill this requirement.

(f) The Applicant argued that the cited art does not disclose the Applicant's claimed "exchanging link parameters".

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 14, wherein O'Keefe discloses ports being added to a trunked group. Also, Bertin discloses updating link information in an environment where a number of links are in continuous use. It would have been obvious to one of the ordinary skill in the art at the time of the invention that as ports are added to a trunk group as disclosed by O'Keefe, that information pertaining to that ports respective link can be updated as disclosed by Bertin.

(g) The Applicant argued that the cited art does not disclose timers binding or blocking transmit operations until the relevant link skew is accommodated.

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 23. Claim 23 as interpreted by the examiner in its broadest term suggests that a timer is associated with a particular list for a period of time. Bertin discloses a database maintaining a link propagation delay, where delay is measured for a given period of time (see rejection of claim 23).

(h) The Applicant argued that the cited art discloses a timer and a time to live parameter that have nothing to do with one another.

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 24, wherein the examiner makes reference to a time to live parameter, which specifies a limit on the amount of time that may pass without an expected result. Therefore it would have been obvious to one of the ordinary skill in the art at the time of the invention that the timer may be easily modified to include a timeout constant, where a timeout constant is inherent within the art.

Conclusion

12. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571)272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Grey
Examiner
Art Unit 2667

9/22/05

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